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12 UNITED STATES DISTRICT COURT  
13 NORTHERN DISTRICT OF CALIFORNIA  
14 SAN JOSE DIVISION  
15

16 IN RE RICOH COMPANY LTD. PATENT )  
LITIGATION )  
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CASE NO.: C 03-02289 JW

**SYNOPSIS'S AND CUSTOMER  
DEFENDANTS' RESPONSIVE CLAIM  
CONSTRUCTION BRIEF**

Date: May 22, 2009  
Time: 9:00 a.m.  
Courtroom 8, 4<sup>th</sup> Floor  
Honorable James Ware

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**TABLE OF ABBREVIATIONS**

Synopsys Brf.	Synopsys's and Customer Defendants' Claim Construction Brief, filed April 3, 2008 (D.I. 627)
Ex. ____	The corresponding exhibit attached to the Declaration of Richard G. Frenkel, submitted in support of Synopsys's and Customer Defendants' Claim Construction Brief, filed April 3, 2009 (D.I. 628)
Ricoh Brf.	Ricoh's Opening Brief on Further Claim Construction, filed April 3, 2009 (D.I. 630; public version at D.I. 625)
Brothers Ex. ____	The corresponding exhibit attached to the Declaration of Kenneth Brothers, submitted in support of Ricoh's Opening Brief on Further Claim Construction, filed April 3, 2009 (D.I. 631; public version at D.I. 625-2)
Reply Ex. ____	The corresponding exhibit attached to the Reply Declaration of Richard G. Frenkel, submitted in support of Synopsys's and Customer Defendants' Responsive Claim Construction Brief, filed April 17, 2009

Note: All emphasis throughout the brief is added, unless otherwise indicated.

1 **I. INTRODUCTION**

2 In order to admit (as it must) that it disclaimed the use of RTL inputs while at the same  
3 time accusing of infringement systems that admittedly use RTL inputs, Ricoh has repeatedly  
4 tried to divide RTL into two types: one that was disclaimed and another that allegedly was not.  
5 There is utterly no support in the record for any of Ricoh's proposals for partitioning RTL.  
6 Ricoh's current proposal ("architecture dependent" RTL and "architecture independent" RTL) is  
7 no exception. Contrary to Ricoh's arguments, the intrinsic record clearly defines RTL and only  
8 supports the conclusion that Ricoh disclaimed all RTL.

9 No doubt aware of this problem, Ricoh struggles to avoid the issue of what RTL actually  
10 meant to one of skill in the art in 1988-90. Ricoh postures that it is "improper" for the Court to  
11 define "register transfer level," but in the final footnote of its opening brief grudgingly concedes  
12 the appropriateness of Synopsys's construction, which is based entirely on the intrinsic record.  
13 What RTL actually meant to one of skill in the art in 1988-90 is clear from the intrinsic record  
14 and that meaning defies Ricoh's litigation-inspired attempts to partition it.

15 With the proper meaning of RTL in mind, a review of the intrinsic record as a whole  
16 unquestionably establishes that Ricoh's prosecution disclaimer includes all design inputs that fit  
17 that definition, *viz.* "all RTL." Such a review also quickly makes it clear that Ricoh's latest  
18 attempt to subdivide RTL has no support whatsoever. The evidence shows that neither Ricoh  
19 nor the prior art ever distinguished between so-called "architecture dependent" RTL and  
20 "architecture independent" RTL. Indeed, Ricoh never even referred to RTL in those terms.  
21 Rather, Ricoh distinguished its alleged invention from numerous prior art references because  
22 those references used RTL inputs, which it unmistakably said were not part of its invention.  
23 Ricoh disclaimed all RTL.

24 For all the reasons set out in Synopsys's opening brief and below, Synopsys requests that  
25 the Court adopt Synopsys's proposed constructions of "a series of architecture independent  
26 actions and conditions" and "register transfer level" descriptions.

## II. ARGUMENT

There is no dispute that the proper construction of “a series of architecture independent actions and conditions” must include an exclusion or “negative limitation” (as Ricoh describes it, *see* Ricoh Brf. at 8) to account of Ricoh’s admitted disclaimer of RTL. Synopsys submits that a proper first step in determining the scope of the disclaimer is to review the intrinsic record to determine what RTL meant in 1988-90. Reviewing the rest of the intrinsic evidence with that proper definition of RTL in mind leads to the only one conclusion: that Ricoh disclaimed all RTL, not some subset of RTL.

### A. RTL Is Well Defined By The Intrinsic Evidence

For the Court’s convenience, the table below sets forth Synopsys’s proposed construction for RTL, as well as Ricoh’s furtive concession extracted from the final footnote in its opening brief (following Ricoh’s warning that it would be “improper” to define RTL). Subject to Ricoh’s responsive brief, Synopsys expects that plain text below is not disputed:

Ricoh	Synopsys
<p><u>The process of this invention begins at step 100 with a register-transfer level description e.g. of the type shown in FIG. 4. The description consists of two parts:</u></p> <p>a specification of the inputs, outputs and <u>latches</u> of the chip to be synthesized; and a <u>flowchart-like</u> specification of control, describing for a single clock cycle of the machine how the chip outputs and <u>latches</u> are set according to the values of the chip inputs and previous values of the <u>latches</u>.</p> <p><u>At step 102 in FIG. 2, the register-transfer level description undergoes a simple translation to an initial implementation of AND/OR logic.</u></p>	<p>A specification of the inputs, outputs, and <u>registers</u> of the chip to be synthesized, and a specification of control, describing for a single clock cycle of the machine how the chip outputs and <u>registers</u> are set according to the inputs and previous values of the <u>registers</u>.</p>

As is obvious from this comparison, there can be no legitimate dispute that the starting point for the definition of RTL is Darringer’s description of RTL in his patent. Ex. 9 at 5:29-35. However, in order for that description to be suitable here, it must be conformed to take into account the six other RTL prior art references that Ricoh distinguished during prosecution. First,

1 Darringer's use of the phrase "flowchart-like" describes a feature of Darringer's preferred  
 2 embodiment of RTL that is not found in the RTL used in the other prior art distinguished by  
 3 Ricoh during prosecution. Thus, "flowchart-like" does not belong in a definition of RTL  
 4 intended to represent what one of ordinary skill in the art would have understood from all the  
 5 intrinsic evidence. Synopsys Brf. at 13-15. Second, the Court should substitute the word  
 6 "registers" for "latches" in Darringer's description to avoid using two words to describe the same  
 7 structure. *Id.* at 16.

8 The two additional and extraneous sentences added by Ricoh includes (Ricoh Brf. at 23  
 9 n.16) have nothing to do with a definition of RTL. The intrinsic evidence cited by Synopsys  
 10 shows the correct definition of RTL at the time Ricoh was prosecuting the '432 patent:  
 11 Darringer's description, with two proposed modifications to account for the entirety of intrinsic  
 12 evidence discussed in the Ricoh patent prosecution.<sup>1</sup>

### 13 1. The Intrinsic Evidence Supports Synopsys's Construction of RTL

14 Ricoh devotes a considerable amount of its brief doomsaying about extrinsic evidence  
 15 that Ricoh apparently expected Synopsys to employ to define RTL. See Ricoh Brf. at 3, 21-23.  
 16 Ricoh's litany of "unprecedented" horrors (Ricoh Brf. at 3) is completely irrelevant because  
 17 Synopsys based its proposed definition of RTL (as it had in 2004) solely on intrinsic evidence.<sup>2</sup>

18 Synopsys's construction is based on the words of the Darringer patent and the other prior  
 19 art itself, and Ricoh admits that "prior art cited in a patent or cited in the prosecution history of a  
 20 patent [such as the Darringer patent] constitutes intrinsic evidence." Ricoh Brf. at 22 (citing  
 21 *Kumar v. Ovonic Battery Co.*, 351 F.3d 1364, 1368 (Fed. Cir. 2003)). In construing a term in  
 22 light of the prior art, it is appropriate for the Court to consider that prior art as a whole. *See*  
 23

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24 <sup>1</sup> Ricoh cites the technology tutorial to try to argue that Synopsys has admitted that the *exact*  
 25 definition in Darringer should apply. Ricoh Brf. at 23 n.15. This is both improper and incorrect.  
 26 First, Ricoh should know that the technology tutorial is not, and cannot be used as, evidence.  
 Second, at the time of the tutorial, the parties were bound by footnote 7 of the Court's April 7,  
 2005 Markman Order which quoted, *inter alia*, Darringer's one sentence description of RTL.  
 The Court has now asked the parties to reconsider the Court's earlier construction.

27 <sup>2</sup> In any event, the Court may properly consider contemporaneous extrinsic *prior art* from the  
 28 time of the Ricoh patent prosecution to help determine the meaning of RTL to one of ordinary  
 skill in the art. *See* Section III.A.3, *infra*.

1 *Chimie v. PPG Indus. Inc.*, 402 F.3d 1371, 1384 (Fed. Cir. 2005); *North Am. Container, Inc. v.*  
 2 *Plastipak Packaging, Inc.*, 415 F.3d 1335, 1344-46 (Fed. Cir. 2005). The changes Synopsys  
 3 proposed to Darringer's description were proposed in consideration of all of the intrinsic RTL  
 4 evidence cited during prosecution.

5 Synopsys proposed eliminating Darringer's use of the phrase "flowchart-like" because  
 6 that phrase describes a feature of Darringer's preferred embodiment of RTL that is not present in  
 7 the other RTL prior art distinguished during prosecution. *See* Synopsys Brf. at 13-15.<sup>3</sup>  
 8 Darringer specifically described in his patent that the RTL description could be in the form of a  
 9 flowchart or other *register-transfer level* description. Ex. 9 at 1:9-11. That is why in  
 10 Darringer's reference to his flowchart in Figure 4, he said that RTL could be "*e.g., of the type*  
 11 *shown*" in that figure. *Id.* at 5:27-29.

12 Synopsys also pointed out that the RTL used in the POLARIS, APLAS, LSS, and  
 13 SOCRATES systems did not include flowcharts, and neither did the two RTL Darringer papers  
 14 from 1980. *See id.* at 14 & n.4. For example, one Darringer paper describes using a "technology  
 15 file" for design inputs, Ex. 19 at 235, while the other describes using a "language" to describe  
 16 "memory elements." Ex. 20 at 544. Neither shows or suggests a flowchart. The POLARIS,  
 17 APLAS, LSS, and SOCRATES systems are described accepting design inputs in the form of  
 18 equations or other text, without any reference to flowcharts. *See* Ex. 13 at 323; Ex. 14 at 392;  
 19 Ex. 15 at 94; Ex. 16 at 23.

20 As such, Synopsys submits that the Court should adopt the Synopsys's proposed  
 21 definition of RTL which based on the entire intrinsic record: "a specification of the inputs,  
 22 outputs and registers of the chip to be synthesized; and a specification of control, describing for a  
 23

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24  
 25 <sup>3</sup> Synopsys's other proposed modification was to substitute the word "latches" in the  
 26 Darringer patent definition with the word "registers," since the "R" in "RTL" stands for  
 27 "register" and the seven intrinsic RTL references support the use of the term register. *See, e.g.,*  
 28 Ex. 13 at 323 ("registers"); Ex. 14 at 392 ("register"); Ex. 19 at 236 ("REGISTER"); Ex. 20 at  
 544 ("registers"). Synopsys Brf. at 16. Synopsys has previously explained that latches,  
 registers, and flip-flops are synonymous in the RTL definition, and Ricoh has not objected to that  
 statement. *See id.* Synopsys does not expect Ricoh to oppose this modification.



1 single clock cycle of the machine how the chip outputs and registers are set according to the  
 2 values of the chip inputs and previous values of the registers.”

## 3 4 **2. The Additional Sentences Proposed By Ricoh To Limit RTL Are Irrelevant And Confusing**

5 Again, after telling the Court that a definition of RTL is “unnecessary and improper,”  
 6 Ricoh waits until the final footnote of its opening brief to address the issue of what RTL meant to  
 7 those of skill in the art in 1988-90. The reason for this avoidance is obvious. The descriptions of  
 8 RTL provided in the contemporaneous, intrinsic prior art completely undermine Ricoh’s  
 9 litigation-inspired attempts to subdivide of RTL into portions that it disclaimed and portions that  
 10 it allegedly did not disclaim.

11 In that final footnote, Ricoh grudgingly proposed using Darringer’s description of RTL  
 12 verbatim as the definition of RTL in this case. However, as described above, a literal adoption of  
 13 Darringer’s description (which includes “flowchart-like”) does not make sense. In addition,  
 14 Ricoh proposes – with no explanation – adding to that description the sentence from the  
 15 Darringer patent that precedes Darringer’s RTL description (Ex. 9 at 5:27-29): “[T]he process of  
 16 this invention begins at step 100 with a register-transfer level description e.g. of the type shown  
 17 in FIG. 4.” Although this sentence supports Synopsys’s position that Ricoh disclaimed all RTL  
 18 (by confirming that “flowchart-like” RTL descriptions are merely Darringer’s preferred  
 19 embodiment), it does not define anything. It simply provides an introductory reference to the  
 20 particular example of RTL shown in Darringer’s Figure 4. As Synopsys demonstrated in its  
 21 opening brief (Synopsys Brf. at 13-15), Darringer elsewhere acknowledges that a “flowchart or  
 22 *other register-transfer level description*” could be used. *Id.* at 14 (quoting Ex. 9 at 1:9-11).

23 Ricoh also proposed adding another sentence from the Darringer patent that immediately  
 24 follows Darringer’s RTL description (*id.* at 5:35-38): “At step 102 in FIG. 2, the register-transfer  
 25 level description undergoes a simple translation to an initial implementation of AND/OR logic.”  
 26 Synopsys explained in its opening brief why this subsequent “simple translation” step, is not part  
 27 of any proper definition of RTL. *Id.* at 15-16. Darringer made it clear that his description was in  
 28 the single sentence at 5:29-35 of his patent (describing RTL as consisting of two parts, and

1 explaining the contents of those two parts), and that the subsequent steps in 5:35-38 (and  
 2 beyond) explain what happens to the RTL after it is input (*e.g.*, that RTL “undergoes a simple  
 3 translation,” *etc.*). It is for this reason that the Court correctly ruled in 2005 that “the subsequent  
 4 translation or transformation steps described in [the Darringer] patent do not alter [that patent’s]  
 5 explicit definition.” Ex. 2 at 12.<sup>4</sup>

6 For the foregoing reasons, Synopsys submits that its proposed definition of RTL should  
 7 be adopted by the Court.

### 8 **3. Ricoh’s Extrinsic Evidence Concerning The Alleged Post-Prosecution** 9 **“Evolution” Of RTL Should Be Disregarded**

10 Despite Ricoh’s repeated warnings that the Court should ignore all the extrinsic evidence  
 11 that Ricoh (incorrectly) anticipated Synopsys would submit, Ricoh casts aside its supposed  
 12 caution and invites the Court to consider a mountain of extrinsic evidence submitted by Ricoh  
 13 which purportedly shows how the meaning of RTL has evolved since Ricoh applied for its  
 14 patent. *See* Ricoh Brf. at 9-11. Ricoh’s warnings are well-taken. The Court should ignore  
 15 Ricoh’s extrinsic evidence and the argument based on it.

16 Despite the fact that the meaning of RTL is readily determinable from the intrinsic  
 17 evidence, Ricoh invites the Court to review what three fact witness depositions, two expert  
 18 reports, two expert declarations and two expert depositions had to say about the supposed  
 19 meaning of RTL *today*. Ricoh Brf. at 9-11 & 22 n.14.<sup>5</sup> All of that “evidence” is thus completely  
 20 irrelevant to determining the meaning of RTL to one of skill in the art *at the time Ricoh was*

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21  
 22 <sup>4</sup> In a different section of its brief, Ricoh also suggested including yet a third extra sentence  
 23 from the Darringer patent at Ex. 9, 5:38-41: “This AND/OR level is produced by merely  
 24 replacing specification language constructs with their equivalent AND/OR implementations in a  
 well known manner.” *See* Ricoh Brf. at 5. Synopsys’s arguments regarding the irrelevant and  
 confusing two extra sentences from the Darringer patent apply equally to this third extra  
 sentence, if it is indeed part of Ricoh’s proposed RTL definition.

25 <sup>5</sup> More specifically, Ricoh submitted and discussed the report of its litigation expert, Dr.  
 26 Papaefthymiou (Brothers Ex. 6), as well as Dr. Papaefthymiou’s deposition (Brothers Ex. 7).  
 27 Ricoh Brf. at 9-10 & 22. Ricoh also submitted Dr. Papaefthymiou’s declaration in opposition to  
 Synopsys’s previous motion for summary judgment of noninfringement (Brothers Ex. 12), and  
 28 discussed the testimony (in 2004, not 1988-1990) of several Synopsys witnesses. Ricoh Brf. at  
 9-11 & n.6. Finally, Ricoh submitted the report, declaration and deposition testimony of another  
 of its paid experts, Dr. Soderman. Brothers Exs. 8-10.

1 *prosecuting the patent-in-suit.* See *Phillips v. AWH Corp.*, 415 F.3d 1303, 1313 (Fed. Cir.  
 2 2005) (advising courts to focus on “the meaning that [a] term would have to a person of ordinary  
 3 skill in the art in question at the time of the invention, i.e., as of the effective filing date of the  
 4 patent application”).<sup>6</sup>

5 Moreover, the type of extrinsic evidence that Ricoh submitted is the kind of post-  
 6 prosecution, litigation-inspired “evidence” that is especially disfavored under controlling  
 7 authority. The Federal Circuit has made plain that extrinsic expert “opinion testimony on claim  
 8 construction should be treated with the utmost caution” because such testimony ““amounts to no  
 9 more than legal opinion – it is precisely the process of construction that the court must  
 10 undertake.”” *Vitronics Corp. v. Conceptronic, Inc.*, 90 F.3d 1576, 1585 (Fed. Cir. 1996) (citation  
 11 omitted).

12 Finally, it is settled that “evidence extrinsic to the patent and prosecution history, such as  
 13 expert testimony, cannot be relied on to change the meaning of the claims when that meaning is  
 14 made clear by those documents.” *Southwall Techs., Inc. v. Cardinal IG Co.*, 54 F.3d 1570, 1578  
 15 (Fed. Cir. 1995). “Any other rule would be unfair to competitors who must be able to rely on the  
 16 patent documents themselves, without consideration of expert opinion that then does not even  
 17 exist, in ascertaining the scope of a patentee’s right to exclude.” *Id.*; see also *Vitronics*, 90 F.3d  
 18 at 1584 (“Indeed, where the patent documents are unambiguous, expert testimony regarding the  
 19 meaning of a claim is entitled to no weight.”).

20 In contrast to Ricoh’s disfavored submission, the Federal Circuit has held that extrinsic  
 21 evidence in the form of *prior art*, “whether or not cited in the specification or file history,” can  
 22 be admitted and relied upon by district courts, because such prior art “can often help to  
 23 demonstrate how a disputed term is used by those skilled in the art.” *Vitronics*, 90 F.3d at 1584.  
 24 Here, Synopsys has not relied upon extrinsic prior art because that “the disputed term[] [RTL]  
 25 can be understood from a careful reading of the public record.” *Id.* However, if the Court is  
 26

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27 <sup>6</sup> In this case, Synopsys believes it is appropriate to consider what one of ordinary skill in the  
 28 art would understand RTL to be in April 1989, which is the time that Ricoh distinguished the  
 RTL prior art and disclaimed RTL as an input to its invention.

inclined to consider contemporaneous extrinsic prior art evidence in this case, that evidence shows the term RTL was used in a manner that is entirely consistent with Synopsys's proposed definition. *See, e.g.*, Reply Ex. 23 at 1-2 (April 1989 Rudell thesis titled "Logic Synthesis for VLSI Design," characterizing RTL as "describ[ing] the registers, the operations which are performed on the values stored in the registers, and the control conditions which sequence these operations"); Reply Ex. 24 at 473-74 (1989 Straus article titled "Synthesis From Register-Transfer Level VHDL," describing specifying registers as requiring knowledge of "some structure" and noting that inferring registers "from usage" is a way to specify those registers); Reply Ex. 25 at 27 (1989 de Geus article titled "Logic Synthesis Speeds ASIC Design," defining RTL as "a design description in which storage elements are interconnected by sections of combinational logic").

**B. Ricoh Disclaimed All RTL Descriptions, Not Merely "Architecture Dependent" RTL Descriptions "As Taught in Darringer"**

With the proper meaning of RTL in mind, a review of the intrinsic record shows that Ricoh's prosecution disclaimer encompassed *all* design inputs that fit that definition, *viz.* "all RTL." That record also makes it clear that Ricoh never distinguished between so-called "architecture dependent" RTL and "architecture independent" RTL. Ricoh never even referred to RTL in those terms. Rather, Ricoh distinguished numerous prior art references because they used RTL, which Ricoh said was not part of its alleged invention. Ricoh disclaimed all RTL.

The parties' competing proposals for "a series of architecture independent actions and conditions" are below. Both are based on the Court's April 7, 2005 construction of that term (again, Synopsys expects that plain text below is not disputed):

Rico	Synopsys
<p>A description of functional or behavioral aspects of <u>a portion of a circuit</u> (or circuit segment) that does not imply <u>a set</u> architecture, structure, or implementing technology,</p> <p>but excluding <u>architecture dependent</u> register-transfer level descriptions <u>as taught in Darringer</u>.</p>	<p>A description of functional or behavioral aspects of <u>a circuit</u> (or circuit segment) that does not imply <u>any set</u> architecture, structure, or implementing technology.</p> <p>Excluded from this definition is the use of <u>all</u> register-transfer level descriptions. <u>Also excluded are all hardware description languages that imply any set architecture, structure, or implementing technology.</u></p>

1  
2                   **1. Ricoh Distinguished The Darringer Patent (And All The Other Cited  
RTL Prior Art) Because They Used RTL Inputs**

3           According to Ricoh, “[t]he prosecution history establishes that Darringer and the other  
4 RTL-based methods discussed by Ricoh during prosecution were *all* distinguished from Ricoh’s  
5 invention as methods having architecture *dependent* inputs.” Ricoh Brf. at 14 (emphasis in  
6 original). This is incorrect. Ricoh did not distinguish the Darringer patent, the two Darringer  
7 papers, the POLARIS system, the APLAS system, the LSS system and the SOCRATES system  
8 because they used “architecture dependent RTL.” Rather, Ricoh distinguished these references  
9 *because they used RTL as design inputs* and therefore, unlike Ricoh’s alleged invention,  
10 required the specialized expert knowledge of a VLSI design engineer.

11           For example, Ricoh pointed to “*a very clear distinction* between [the] Darringer [patent]  
12 and the present invention,” namely that “the input to the Darringer system is in the form of a  
13 *register transfer level* flowchart control language” which requires the designer to “have the  
14 specialized expert knowledge of a highly skilled VLSI design engineer.” See Synopsys Brf. at 8,  
15 citing Ex. 5 at 9. Ricoh also distinguished two Darringer papers on the same basis as the  
16 Darringer patent, adding that although these papers disclosed inputs (RTL) “in the form of a  
17 functional specification, the designer must possess specialized knowledge” of a VLSI expert.  
18 *Id.*, citing Ex. 5 at 16.

19           With respect to the POLARIS, APLAS, LSS and SOCRATES systems discussed in the  
20 article by Trevillyan, Ricoh did not distinguish them on the grounds that they used “architecture  
21 dependent RTL.” Rather, Ricoh distinguished them on the grounds that all four required a user  
22 who “must possess specialized knowledge of a highly skilled VLSI design engineer relating to  
23 computer architecture and hardware *since input to the systems is in the form of register transfer*  
24 *level languages.*” Ex. 5 at 13; *see also* Synopsys Brf. at 9.

25           In short, Ricoh never told the Patent Office (or the public reading the prosecution history)  
26 that there was more than one type of RTL and that its disclaimer was limited to “architecture  
27 dependent” RTL. Ricoh’s contemporaneous silence is on that point is fully consistent with the  
28 fact that there is no such distinction between “architecture dependent” RTL and “architecture

independent” RTL anywhere the intrinsic record. Ricoh broadly distinguished seven prior art references as not being its invention because those prior art references used RTL inputs. The public, including Synopsys, had the right to rely on these clear and unmistakable statements, and accordingly had the right to use RTL inputs without fear of being sued by Ricoh. *See Seachange Int’l, Inc. v. C-COR, Inc.*, 413 F.3d 1361, 1374 (Fed. Cir. 2005) (“[A]n argument ‘that would erase from the prosecution history the inventor’s disavowal of a particular aspect of a claim term’s meaning’ is ‘inimical to the public notice function provided by the prosecution history.’”) (citation omitted); *Springs Window Fashions LP v. Novo Indus., L.P.*, 323 F.3d 989, 995 (Fed. Cir. 2003) (“The public notice function of a patent and its prosecution history requires that a patentee be held to what he declares during the prosecution of his patent. A patentee may not state during prosecution that the claims do not cover a particular device and then change position and later sue a party who makes that same device for infringement.”).

Moreover, even if Ricoh’s comments in its November 1989 response to the Examiner’s second Office Action (Ex. 6 at 7) are interpreted as distinguishing the Darringer patent based on some narrower form of RTL – which they should not be – Ricoh’s other broad arguments about the two Darringer papers, the POLARIS system, the APLAS system, the LSS system and the SOCRATES system require this Court to enforce the broader disclaimer. *See Synopsys Brf.* at 9-11, discussing, *inter alia*, *North American Container, Inc. v. Plastipak Packaging, Inc.*, 415 F.3d 1335 and *Computer Docking Station Corp. v. Dell, Inc.*, 519 F.3d 1366 (Fed. Cir. 2008). Ricoh’s disavowal of RTL in those other systems was clear and unambiguous, and “a disavowal, if clear and unambiguous, can lie in a single distinction among many.” *Computer Docking*, 519 F.3d at 1377; *see also Norian Corp. v. Stryker Corp.*, 432 F.3d 1356, 1362 (Fed. Cir. 2005) (“[W]e have not allowed [patentees] to assert that claims should be interpreted as if they had surrendered only what they had to.”).

## 2. RTL Cannot Be Divided Into “Architecture Dependent” and “Architecture Independent” Species

Ricoh’s attempt to partition RTL into “architecture independent” and “architecture dependent” portions is simply its latest futile attempt to redefine RTL in a way that Ricoh hopes



1 will let it have its cake (admit to its disclaimer of RTL) and eat it too (accuse systems that use  
2 RTL of infringement). It is simply litigation-inspired fiction.

3 In its opening brief, Synopsys explained the history of Ricoh's relentless effort during  
4 this litigation to partition RTL into two subsets, and to argue that only one of them was  
5 disclaimed. Ricoh first did so during the original claim construction briefing in 2004, concocting  
6 the existence of so-called "structural" RTL (disclaimed) and "functional" RTL (allegedly not  
7 disclaimed). The Court properly found that this argument had no support in the "patent's public  
8 record," and concluded that Ricoh had "disclaimed all register-transfer level descriptions."  
9 *Markman* at 12; Synopsys Brf. at 2-3.<sup>7</sup>

10 Synopsys's opening brief also explained how Ricoh next grasped at the language "as  
11 taught in Darringer" as the basis of a new way to partition RTL: into "Darringer" RTL  
12 (disclaimed) and "non-Darringer" RTL (allegedly not disclaimed). This subdivision, however,  
13 conveniently ignores the six other RTL prior art references distinguished by Ricoh during  
14 prosecution (*id.* at 3) and the five references distinguished on the grounds that they used  
15 hardware description languages.<sup>8</sup> *See infra* at Section III.C.1. Ricoh relied on this fictional  
16 partition to oppose Synopsys's motion for summary judgment.

17 Now, Ricoh repeats the same mantra, this time asking the Court to subdivide RTL into  
18 "architecture dependent" RTL (disclaimed) and "architecture independent" RTL (allegedly not  
19 disclaimed), without any intrinsic support for such a distinction. First of all, the phrases  
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21 <sup>7</sup> Undeterred by the Court's ruling, Ricoh still perpetuates this distinction in this case,  
22 submitting the report and declaration of its expert, Dr. Papaefthymiou, who argues that "the  
23 Darringer Patent uses the term 'RTL' in the sense of the older (then-prevalent) structural RTL  
that is not claimed by the '432 Patent," *Brothers Ex. 6* at 13, and "[t]he RTL taught in the  
Darringer '435 Patent is an architecture dependent, structural (i.e., logic) level description."  
*Brothers Ex. 12* at ¶ 13.

24 <sup>8</sup> The point of the language "as taught in Darringer" in the Court's original construction was  
25 to direct the fact finder to the description of RTL provided by Darringer and quoted in footnote 7  
26 of the Court's April 7, 2005 Order. Hence the Court's citation of the *Kumar* case and the  
27 Darringer patent's "explicit definition." *Ex. 2* at 12. But as the Court acknowledged in its  
28 March 6, 2009 Order, the inclusion of the phrase "as taught in Darringer" creates ambiguity.  
D.I. 621 at 10. Synopsys's proposed definition of RTL, which accounts not only for the  
Darringer patent but also the rest of the intrinsic RTL references, eliminates that ambiguity. *See*  
Section III.A, *supra*. Thus, there is no need for the disclaimer of RTL to be "as taught in  
Darringer."

1 “architecture dependent RTL” and “architecture independent RTL” do not appear anywhere in  
 2 the ‘432 patent specification or claims. *See generally* Ex. 1. Nor do they appear anywhere in the  
 3 prosecution history. Ricoh coined these phrases when writing its latest brief.

4 Second, the phrase “architecture dependent” does not appear anywhere in the patent  
 5 specification or claims.<sup>9</sup> And it appears only once in the prosecution history in Ricoh’s  
 6 November 1989 response to the Examiner’s second office action. There, Ricoh told the Patent  
 7 Office that the Darringer patent’s input was “hardware architecture dependent *and* defines the  
 8 system at a ‘register-transfer’ level description.” Ex. 6 at 7. However, this passage supports  
 9 Synopsys’s position because Ricoh did not just argue that Darringer only disclosed “architecture  
 10 dependent RTL.” Rather, Ricoh distinguished Darringer’s input on two grounds: it is “hardware  
 11 architecture dependent” *and* it defines the system at a “‘register-transfer’ level.”

12 Third, neither “architecture independent” nor “architecture dependent” are defined by  
 13 Ricoh anywhere in the intrinsic record. The reason the Court appropriately found a prosecution  
 14 disclaimer in the first place was that Ricoh clearly identified during prosecution what was *not* its  
 15 alleged “architecture independent” invention: RTL. Thus, Ricoh’s proposed construction of  
 16 “architecture independent” as excluding “architecture dependent” is not only unsupported by the  
 17 intrinsic record, but it is also circular and confusing.

18 Because Ricoh distinguished seven references on the basis that each used RTL inputs,  
 19 and Ricoh never drew any distinction between “architecture dependent RTL” and “architecture  
 20 independent RTL” anywhere in the intrinsic record, the proper scope of the prosecution  
 21 disclaimer must include “all” RTL, as RTL is defined by the Court.

### 22 **3. The Intrinsic References Ricoh Cites And Discusses Do Not Support A** 23 **Division Of RTL Into “Architecture Dependent” And “Architecture** **Independent” Parts**

24 Ricoh tries to argue that because the Darringer patent describes details about latches (*i.e.*,  
 25 registers) and translation steps, and because Trevillyan uses the word “structure” to describe  
 26 RTL, this somehow establishes that Ricoh was only distinguishing “architecture dependent”  
 27

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28 <sup>9</sup> Neither, for that matter, does the term “dependent.”



1 RTL. Ricoh Brf. at 15-16. Nonsense. None of the seven RTL references distinguished during  
2 prosecution do anything other than support the definition of RTL proposed by Synopsys in  
3 Section III.A, *supra*. Certainly these references do not support imposing an “architecture  
4 dependent” limitation on the disclaimer of RTL.

5 For example, Trevillyan did not partition RTL into “architecture dependent” and  
6 “architecture independent” subsets, as Ricoh erroneously suggests. Rather, Trevillyan explained  
7 that the world of design inputs is a continuum. On one end of the spectrum are purely behavioral  
8 inputs, *i.e.* no structure or architecture. Ex. 11 at 166. On the other end of the spectrum are  
9 systems where “design is entered at a low level,” *i.e.*, structure or architecture. *Id.* Between  
10 those two ends lies RTL. Specifically, Trevillyan described RTL as being “the middle ground  
11 between these extremes,” where the designer must input some information about “*gross*  
12 structure,” but can leave the “local structure” to the synthesis system. *Id.* Thus, according to  
13 Trevillyan, RTL involves some description of structure (*i.e.*, registers), which is entirely  
14 consistent with Synopsys’s proposed definition. Most assuredly, Trevillyan provides no support  
15 for Ricoh’s fictional distinction between “architecture dependent” and “architecture  
16 independent” forms of RTL.

17 If there remains any lingering doubt on this score, it is laid to rest by Ricoh’s distinctions  
18 of the POLARIS, APLAS, LSS and SOCRATES systems, as well as of the two 1980 Darringer  
19 articles. Specifically, Ricoh distinguished the first four RTL systems because their users had to  
20 possess highly specialized expert knowledge of “computer architecture and hardware since input  
21 to those systems is in the form of register transfer level languages.” Ex. 5 at 13. Significantly,  
22 Ricoh drew this distinction despite the fact that the POLARIS system admittedly uses a “Register  
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1 Transfer level” description at a “technology-*independent*” level. Ex. 13 at 322.<sup>10</sup> This  
 2 necessarily means that the use of RTL, *per se*, was disclaimed, not just so-called “architecture  
 3 dependent” RTL.

4 Similarly, Ricoh disclaimed the RTL inputs in the two 1980 Darringer papers even  
 5 though those inputs, “as was the case with [the Darringer patent],” “may be in the form of a  
 6 *functional* specification.” Ex. 5 at 16. Ricoh did not attempt to partition the Darringer papers  
 7 into “structural” and “functional” RTL or into “architecture dependent” and “architecture  
 8 independent” RTL. Ricoh necessarily disclaimed all RTL. And the explicitly stated reason for  
 9 this disclaimer was that unlike its invention, the RTL inputs of the Darringer papers – just like  
 10 those of the Darringer patent and the POLARIS, APLAS, LSS and SOCRATES systems – all  
 11 require the user to “have the specialized expert knowledge of a highly skilled VLSI engineer.”  
 12 *E.g.*, Ex. 5 at 9.

13 Ricoh told the Patent Office and the public that seven references were not its invention  
 14 because those references used RTL, period. These references do not support a disclaimer limited  
 15 to “architecture dependent” RTL. The Court should conclude that all RTL was disclaimed.

#### 16 **4. Ricoh’s Authority Is All Inapposite**

##### 17 **a. The Court Should Consult The Prosecution History**

18 First, Ricoh argues that the Federal Circuit in *Phillips v. AWH Corp.*, 415 F.3d 1303,  
 19 1317 (Fed. Cir. 2005) discouraged consulting the prosecution history in construing claims.

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21 <sup>10</sup> The Court can examine the POLARIS, APLAS, and other intrinsic prior art submitted by  
 22 Synopsys in its opening brief. Prior art distinguished by the patentee during prosecution is  
 23 properly part of the public record and can form the basis to limit the claims, even if the Examiner  
 24 never responds to or relies on that prior art or the patentee’s attempts to distinguish it. *See*  
 25 *Springs Window Fashions*, 323 F.3d at 995 (“[T]he examiner’s remarks [about a different aspect  
 26 of the prior art] do not negate the effect of the applicant’s disclaimer.”); *Laitram Corp. v.*  
 27 *Morehouse Indus., Inc.*, 143 F.3d 1456, 1462 (Fed. Cir. 1998) (“The fact that an examiner placed  
 28 no reliance on an applicant’s statement distinguishing prior art does not mean that the statement  
 is inconsequential for the purposes of claim construction.”). Here, Ricoh cited the prior art  
 POLARIS, APLAS, LSS and SOCRATES systems by name, and pointed where, in the  
 Trevillyan article, those systems were disclosed. As such, articles referenced in Trevillyan as  
 describing these four systems are intrinsic evidence, not extrinsic evidence. In any case, Ricoh  
 has invited the Court to look at the “other RTL-based prior art systems disclosed in the intrinsic  
 prosecution history.” Ricoh Brf. at 15.

Ricoh Brf. at 11-12. This is preposterous. Consistent with a legion of Federal Circuit cases,<sup>11</sup> *Phillips* states that “the prosecution history can often inform the meaning of the claim language by demonstrating how the inventor understood the invention and whether the inventor limited the invention in the course of prosecution, making the claim scope narrower than it would otherwise be.” 415 F.3d at 1317. As such, “a court should also consider the patent’s prosecution history, if it is in evidence.” *Id.* (citation omitted).

**b. Synopsys Does Not Have The “Burden Of Proof” In Claim Construction**

Second, Ricoh argues that the “party seeking to benefit from the disclaimer ... bear [*sic*] the burden of proving that the patentee’s alleged disavowal of subject matter was clear and unmistakable.” Ricoh Brf. at 12; *see also id.* at 12-13 n.10. But the courts in this District have held that there is no burden of proof for either side in claim construction. *See, e.g., Level One Commc’ns, Inc. v. Seeq Tech., Inc.*, 987 F. Supp. 1191, 1196 (N.D. Cal. 1997).

Ricoh has confused the burden of producing evidence with the burden of proof. Of course, a party urging the existence of a disclaimer has the obligation to identify the intrinsic evidence that supports its position. This “burden of production” is the only requirement in the cases cited by Ricoh; none refer to any “burdens of proof” such as “preponderance” or otherwise.

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<sup>11</sup> *See, e.g., Andersen Corp. v. Fiber Composites, LLC*, 474 F.3d 1361, 1374 (Fed. Cir. 2007) (“[A]n applicant’s argument [during prosecution] that a prior art reference is distinguishable on a particular ground can serve as a disclaimer of claim scope even if the applicant distinguishes the reference on other grounds as well.”); *Chimie*, 402 F.3d at 1384 (“The purpose of consulting the prosecution history in construing a claim is to ‘exclude any interpretation that was disclaimed during prosecution.’”) (citation omitted); *Springs Window Fashions*, 323 F.3d at 995 (“A patentee may not state during prosecution that the claims do not cover a particular device and then change position and later sue a party who makes that same device for infringement.”); *Bell Atl. Network Servs., Inc. v. Covad Commc’ns Group, Inc.*, 262 F.3d 1258, 1268 (Fed. Cir. 2001) (“[A court] must also examine the prosecution history to determine whether the patentee has relinquished a potential claim construction in an amendment to the claim or in an argument to overcome or distinguish a reference.”); *Digital Biometrics, Inc. v. Identix, Inc.*, 149 F.3d 1335, 1344 (Fed. Cir. 1998) (“The prosecution history is relevant because it may contain contemporaneous exchanges between the patent applicant and the PTO about what the claims mean.”); *Ekchian v. Home Depot, Inc.*, 104 F.3d 1299, 1304 (Fed. Cir. 1997) (“[B]y distinguishing the claimed invention over prior art, an applicant is indicating what the claims do not cover, he is by implication surrendering such protection.”).

c. **Unlike *Omega Engineering*, The Disclaimer In The Prosecution of Ricoh's Patent Was Clear And Unmistakable**

Third, Ricoh cites as many cases as it could find where courts have rejected proposed prosecution disclaimers. Ricoh Brf. at 2, 12, & 14-20.<sup>12</sup> But for every case that Ricoh cites, Synopsys can cite an equal number where the opposite result was obtained.<sup>13</sup> Thus the number of Ricoh's citations proves nothing. What makes precedent persuasive is the degree to which the operative facts resemble those of this case. And on that score, Ricoh's authority is woefully inadequate.

Ricoh's principal case, what it calls "controlling" authority, is the decision in *Omega Engineering, Inc. v. Raytek Corp.*, 334 F.3d 1314 (Fed. Cir. 2003). Ricoh Brf. at 17-20. But that case is readily distinguishable.

Specifically, the claims in *Omega* all pertained to a method of outlining an energy zone with a beam. 334 F.3d at 1318-19. The prior art Everest patent used a beam to illuminate the entire energy zone, including the center, while the prior art Darringer patent (a different Darringer) used a beam directed at the center of the energy zone. *See id.* at 1318. During prosecution, *Omega* distinguished these patents on the basis that unlike the prior art, *Omega*'s invention did not add heat to the energy zone. *See id.* at 1326-27. There was no evidence that *Omega* ever distinguished either reference on the grounds that it described a beam directed at the center of the energy zone.

Raytek's accused product had "sixteen separate beams, fifteen of which are directed to the periphery of the energy zone, with one beam directed into the center of the energy zone." *Id.*

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<sup>12</sup> Ricoh speaks out of both sides of its mouth about the prosecution disclaimer. In attempting to align this case with, *e.g.*, *Omega Engineering*, Ricoh argues that it did not make any disclaimer at all – not of any kind of RTL. Ricoh Brf. at 17-20. However, in other parts its brief, Ricoh admits that there was at least some prosecution disclaimer, although it tries to limit the scope of that disclaimer to "architecture dependent" RTL. *See id.* at 14-16.

<sup>13</sup> *See, e.g.*, Synopsys Brf. at 9-11 (citing several examples); *see also Verizon Servs. Corp. v. Vonage Holdings Corp.*, 503 F.3d 1295, 1306-07 (Fed. Cir. 2007) (finding clear and unmistakable prosecution disclaimer); *Chimie*, 402 F.3d at 1384-85 (same); *Microsoft Corp. v. Multi-Tech Sys., Inc.*, 357 F.3d 1340, 1350 (Fed. Cir. 2004) (same); *Bell Atl.*, 262 F.3d at 1273-74 (same); *Seachange*, 413 F.3d at 1374 (same); *Computer Docking*, 519 F.3d at 1379 (same).

1 at 1319. Raytek argued that beams directed at the center of the zone were disclaimed during  
 2 prosecution. *See id.* The Federal Circuit rejected that construction because during prosecution,  
 3 the prior art was distinguished only on the basis of adding heat into the energy zone, not on the  
 4 basis of directing beams at the center of that zone. *Id.* at 1327.

5 In stark contrast to *Omega*, Ricoh did specifically distinguish seven prior art systems  
 6 based on their use of RTL as a design input. *See, e.g.*, Ex. 5 at 9 (“A **very clear distinction**  
 7 between Darringer and the present invention is that the input to the Darringer system is in the  
 8 form of a **register transfer level** flowchart control language.”); *id.* at 13 (“A user of the Polaris  
 9 and APLAS systems must possess specialized knowledge of a highly skilled VLSI design  
 10 engineer relating to computer architecture and hardware **since input is in the form of register**  
 11 **transfer level languages.**”); *id.* (“Input to the LSS system is in the form of **register transfer level**  
 12 languages and source code level language. **Therefore**, the user of this system must possess  
 13 knowledge of computer architecture and hardware.”). Ricoh repeatedly argued that its alleged  
 14 invention was patentable over the cited prior art **because** that prior art used RTL inputs.<sup>14</sup>

15 The Federal Circuit authority cited by Ricoh with facts that most closely resemble those  
 16 here is *Seachange Int’l, Inc. v. C-COR Inc.*, 413 F.3d 1361, not *Omega*. In *Seachange*, the  
 17 applicant claimed “interconnecting ... through a network for data communication,” and was  
 18 faced with a rejection based on two prior art patents. *See id.* at 1373. The patentee made two  
 19 arguments to overcome the rejection: (a) the prior art did not have interconnected processors and  
 20 (b) the prior art did not require that all interconnections be “point-to-point.” *See id.* The  
 21 patentee later argued during litigation that the “interconnected processors” distinction was the  
 22 primary basis for the Examiner’s allowance of the claims, and not the “point-to-point”  
 23 distinction. *See id.* at 1374. The Federal Circuit rejected this argument, finding that the general  
 24 distinguishing of the two patents on the “point-to-point” feature was a clear disavowal of claim  
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26 <sup>14</sup> Ricoh also relies on a bundle of cases which stand for the unremarkable black letter  
 27 proposition that absent clear and unmistakable evidence from the prosecution history, no  
 28 disclaimer should be found. *See* Ricoh Brf. at 14, 15 and 17. Synopsys has no quarrel with any  
 of this authority. But it has no bearing here, given the facts of this case. There is nothing  
 remotely ambiguous about the ‘432 prosecution history.

1 scope whether relied upon by the Examiner or not. *See id.* “Consequently, Seachange cannot  
 2 now rewrite the prosecution history to distinguish [the asserted] claims, based only on the  
 3 limitation that each processor be interconnected to each other processor, and thereby erase the  
 4 requirement that all connections be point-to-point.” *Id.*<sup>15</sup>

5 In summary, Ricoh distinguished seven separate prior art references – the Darringer  
 6 patent, the two Darringer articles, and the APLAS, SOCRATES, LSS and POLARIS systems –  
 7 on the grounds that they used RTL languages as inputs. This distinction was drawn clearly,  
 8 unmistakably and repeatedly. Ricoh’s authorities do not render it otherwise.

### 9 10 **C. Ricoh’s Arguments Support The Remaining Portions Of Synopsys’s Proposed Construction**

11 In its opening brief, Synopsys also proposed two other modifications to the Court’s 2005  
 12 construction of “a series of architecture independent actions and conditions.” Ricoh did not  
 13 address either of these issues in its opening brief so Synopsys’s only opportunity to respond to  
 14 Ricoh will be at the May 22 hearing. Nevertheless, as explained below, Ricoh made certain  
 15 admissions in its opening claim construction brief that confirm the soundness of these two other  
 16 portions of Synopsys’s proposed construction.

#### 17 **1. Ricoh Disclaimed All Inputs Using Hardware Description Languages 18 That Imply Architecture, Structure, or Implementing Technology**

19 In its opening brief, Synopsys demonstrated that separate and apart from its distinctions  
 20 over the RTL prior art, Ricoh also distinguished its alleged invention from numerous other prior  
 21 art references on the grounds that these other references disclose hardware description languages  
 22 (“HDLs”) that imply architecture, structure, or implementing technology, and therefore, unlike  
 23 Ricoh’s alleged invention, require a user to possess the “specialized knowledge of a highly  
 24 skilled VLSI design engineer.” Synopsys Brf. at 16-18.

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25  
 26 <sup>15</sup> To the same effect is *Verizon Servs. Corp. v. Vonage Holdings Corp.*, 503 F.3d 1295,  
 27 1307 (Fed. Cir. 2007) (reversing judgment of infringement following trial when earlier in claim  
 28 construction, district court failed to find clear and unmistakable prosecution disclaimer in light of  
 patent applicant’s differentiation of its “present invention” from prior art based on distance from  
 wireless gateway system); *see also* cases discussed by Synopsys in its opening brief at 9-11.



While Ricoh does not directly address the issue in its opening brief, its arguments fully support Synopsys's argument that HDLs which imply structure should be included within the "negative limitation" that defines the scope of Ricoh's prosecution disclaimer. Specifically, Ricoh admitted in its opening brief that it "disavowed any method using an architecture dependent input, which would otherwise require the sophisticated knowledge of VLSI design." Ricoh Brf. at 14. Ricoh cannot credibly dispute that HDLs which *do* imply some architecture, structure, or implementing technology are what it has coined as "architecture dependent," and thus were "disavowed" during prosecution.

## 2. "Architecture Independent" Does Not Imply "Any" Set Architecture, Structure, or Implementing Technology

Ricoh's original claim construction proposal to the Court was that "a series of architecture independent actions and conditions" included descriptions that do not imply *"any"* set architecture, structure, or implementing technology. Synopsys Brf. at 18, citing Ex. 2 at 8. The Court adopted Ricoh's proposed construction with one minor and unexplained exception: it substituted the word "a" for the word "any." This Court should restore the word "any" back into the definition.

Again, Ricoh's arguments in its opening brief support this proposal. For example, Ricoh admits that the Trevillyan article was characterizing "hardware dependent" systems when it said that those systems "require the designer to make *'some* decisions about the placement of cycle boundaries and the gross *structure* of the logic.'" Ricoh Brf. at 15-16, citing Ex. 2 at 116 (emphasis added by Ricoh). If Ricoh believes that "architecture dependent" means implying "some" set architecture, structure, or implementing technology, then "architecture independent" must be construed to "not imply *any* set architecture, structure, or implementing technology."<sup>16</sup> Just as with Synopsys's other proposals for the definition of RTL and the correct scope of

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<sup>16</sup> Synopsys described one additional modification to clarify that a series of architecture independent actions and conditions could be input to describe either a circuit or a circuit segment, but not some arbitrary "portion of a" circuit segment. Synopsys Brf. at 18-19. Synopsys believes that this correction will make the construction easier to comprehend, and does not anticipate that Ricoh will disagree with this minor clarification.

1 prosecution disclaimer, the intrinsic evidence compels the proper construction proposed by  
2 Synopsys.

3 **III. CONCLUSION**

4 For the foregoing reasons, Synopsys respectfully requests that the Court adopt its  
5 proposed construction of “a series of architecture independent actions and conditions” and its  
6 proposed definition of “register-transfer level” as set forth in Section II, *supra*.

7  
8 Respectfully submitted,

9 Dated: April 17, 2009

WILSON SONSINI GOODRICH & ROSATI  
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